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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/449,912	12/02/1999	NICK P. DIVITTORIO	202232	6873

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EXAMINER	
TANG, KENNETH	

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/449,912	DIVITTORIO, NICK P.	
	Examiner	Art Unit	
	Kenneth Tang	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is in response to the Amendment on 9/20/05. Applicant's arguments have been fully considered but are not found to be persuasive.

2. Claims 1-26 are presented for examination.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-7, 13-19, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior art in the Specification (hereinafter AAPA) in view of Iino et al. (hereinafter Iino) (US 5,347,446), and further in view of Mann et al. (hereinafter Mann) (US 5,891,178).

4. As to claim 1, AAPA teaches a control processor for executing a set of control tasks defining interactive control of an industrial process *(page 3, lines 1-2)*, the control processor comprising:

an embedded control task comprising a program including a set of output values corresponding to process setpoints *(page 2, lines 5-23)*;

a set of control blocks including regulatory control blocks having output values that are transmitted by the control processors to field devices coupled to the industrial process *(page 2, lines 5-23)*.

5. AAPA fails to explicitly teach that the program be a multi-variable linear one. However, Iino teaches a control processor with a dynamic model based interactive control of an industrial process comprising a multivariable linear program *(see Abstract, col. 1, lines 5-28, etc.)*. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the features of a control processor with a dynamic model based interactive control of an industrial process comprising a multivariable linear program to the existing control processor controlling an industrial process because this would optimize performance based on changing multiple variables *(col. 4, lines 64-68)*.

6. AAPA and Iino fails to explicitly teach having a high and low execution priority status. However, Mann teaches a control processor interacting with a device higher wherein the control processor dynamically switches between multiple operating levels consisting of a background level (low priority) and a foreground level (higher priority). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Mann with AAPA and Iino because this would increase the speed and efficiency of the shifting/switch of tasks in AAPA and Iino *(col. 10, lines 40-44 and 57-60)*.

7. As to claims 2, AAPA teaches wherein the set of control blocks comprise supervisory control blocks *(page 2, lines 5-23)*.

8. As to claim 3, AAPA in view of Iino teaches wherein the supervisory control blocks include a multivariable control block including computer instructions facilitating communication between the control processor and a workstation *(see rejection of claims 1 and 2)*. In addition, Mann teaches downloading data between the control processor and device *(col. 13, lines 16-17)*.

9. As to claim 4, AAPA in view of Iino teaches wherein the multivariable control block includes a process control model to be implemented by the embedded control task *(see rejection of claim 1)*. Mann teaches downloading program instruction data between the control processor and device *(col. 13, lines 16-17)*.

10. As to claims 5, AAPA in view of Iino teaches wherein the supervisory control blocks include at least one multivariable loop block, and further comprising the step of execution of instructions and data associated with the at least one multivariable loop block *(see rejections of claims 1 and 2)*. AAPA teaches providing in put value for a regulatory control block via a user interface *(page 3, lines 1-2)*.

11. As to claim 6, AAPA teaches wherein regulatory control block is a PID block *(page 2, lines 5-23)*.

12. As to claims 7 AAPA, Iino teaches wherein the regulatory control block is a ratio block. However, it is well known in the art that control blocks can take on ratio values. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the

feature of the control block being a ratio block because this increases the functionality by being able to use ratio values as well as non-ratio values.

13. As to claims 13-19, they are rejected for the same reasons as stated in the rejections of claims 1-7, respectively.

14. As to claims 25, it is rejected for the same reasons as stated in the rejection of claim 1.

15. As to claims 26, it is rejected for the same reasons as stated in the rejection of claim 1. In addition, Mann teaches temporarily halting a background routine so that a foreground routine can be executed *(col. 10, lines 26-31)*.

16. Claims 8-12 and 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior art in the Specification (hereinafter AAPA) in view of Iino et al. (hereinafter Iino) (US 5,347,446), further in view of Mann et al. (hereinafter Mann) (US 5,891,178), and further in view of Messih et al. (hereinafter Messih) (US 5,526,794).

17. As to claims 8-12, AAPA, Iino and Mann teach wherein the set of control blocks includes a supervisory control block including a sequence of instructions/tasks. AAPA, Iino and Mann fails to explicitly teach a re-commencing cycle of the embedded task in accordance with a value specified by a repetition cycle parameter having a period, wherein the period specified by the

repetition cycle parameter exceeds a period specified by the block processing cycle parameter. However, Messih teaches background and foreground execution in a controller wherein there is a time period (when period exceeds the period of completion of the foreground routine) before a cycle is restarted. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Messih to the existing system because this allows for optimization of speed (increasing) and the necessary amount of time (decreasing) *(col. 4, lines 7-19)*.

18. As to claims 20-24, they are rejected for the same reasons as stated in the rejections of claims 8-12, respectively.

Response to Arguments

19. During patent examination, the pending claims must be "given their broadest reasonable interpretation consistent with the specification." *In re Hyatt*, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000). Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

20. Applicant argues on page 10 in the Remarks that there is no motivation to modify the prior art to include the recited linear programs into a control processor.

In response, the Examiner respectfully disagrees. Iino teaches multivariable input and output to the control apparatus (see Abstract, Fig. 1 and Fig. 3) and the motivation would be to optimize performance based on changing multiple variables *(col. 4, lines 64-68) or* minimize cost *(col. 1, lines24-26)*.

21. Applicant argues on page 11 of the Remarks that the references do not relate to an industrial process.

In response to applicant's arguments, the recitation control processor for an industrial process has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

22. Applicant argues on page 11 of the Remarks that Mann does not disclose a linear program that runs upon a control processor and supplies process setpoints.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Iino teaches a control processor with a dynamic model based interactive control of an industrial process comprising a multivariable linear program *(see Abstract, col. 1, lines 5-28, etc.)*

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kt
12/5/05

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